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July 29, 1940

Treatment for the Control of Matsucoccus bisetosus

These treatments were applied with the idea of determining the effects of eliminating populations of Matsucoccus bisetosus from heavily infested ponderosa pines. The work was done in the Hat Creek area using small pines 5 to 10 feet in height selected by H.L.MacKenzie.

On May 16, 1940 MacKenzie and the weiter treated a portion of the trees and the weiter treated the remainder during the following week. Both spray mixtures and fumigants were used as shown in the following table:

Test No.	Tree No.	Formula*	
1	15,16	Diesel oil emulsion	4%
2	17,18,19	Tank mix oil #3 (light med.)	0.04%
		Blood albumin	4 oz.
		Nicotine (95%alkaloid)	0.04%
3	20,21	Tank mix oil #3	4%
		Blood albumin	4 oz.
		Nicotine sulphate (40%)	1 pint
4	22,23	Tank mix oil #4 (medium)	4%
		Blood albumin	4 oz.
		Nicotine (95% alkaloid)	0.04%
5	24,25	Tank mix oil #4	4%
		Blood albumin	4 oz.
		Nicotine sulphate (40%)	0.04%
6,11	26,30	Methyl bromide 1 pound per 1000 cu.ft.	
9,12	29,31	Methyl bromide 1/2 pound per 1000 cu.ft.	
7,8,10	27,32,33	Calcium cyanide 2 oz. per 100 cu.ft.	

* Ingredients of sprays are given on the basis of amounts required for 100 gallons of a water mixture.

The spray mixtures were applied with a bucket pump and were vigorously

stirred during spraying to maintain uniform dispersion. From a superficial examination, it appeared that penetration of the oil into the bark crevices was fairly satisfactory, but not as rapid as would have occured if a more driving spray could have been developed. Fumigation of trees with calcium cyanide was done under a canvas sheet and the gas held 45 minutes. The methyl bromide was applied under a neoprene sheet and held 24 hours. The foliage was unharmed on all trees except No. 30, which was killed by the methyl bromide. The effects of these chemicals upon the scale insects will be determined by MacKenzie at a later date.

It should be mentioned that practically all the trees treated were moderately to heavily infested with resin midge, Retinodiplosis sp. At the time of application the larvae of the 1940 generation had entered the new growth so that the spray mixtures and the calcium cyanide will probably have no effect on these insects. The methyl bromide may have penetrated the new growth sufficiently to kill some larvae, but this is doubtful. The presence of resin midge injury next spring on the fumigated trees, therefore, will not necessarily be an indication of the presence or absence of Matsucoccus.

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